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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/676,303

09/30/2003

Sujit Sharan

42P16837

8178

8791

7590

10/25/2006

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EXAMINER

MITCHELL, JAMES M

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 10/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/676,303

Applicant(s)

SHARAN ET AL.

Examiner

James M. Mitchell

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This office action is in response to applicant's request for continued examination filed October 28, 2005.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al. (U.S. 2003/0013233) in combination with Manor (U.S. 2002/0031899) in combination with Gupta et al. (U.S. 2004/0014253).

Shibata (Fig 1e-f) discloses:

(cl. 1, 9, 14) a method of forming a chemically soluble coating (3;"chemical process"; Par, 0015) on a plurality of exposed contacts (2) on a surface of a circuit substrate (1) to a thickness greater than a distance of a surface protrusion of a portion of a plurality of contacts (2), and removing portions of the coating (Fig. 1(d)-1(d);"chemical process"; Par, 0015);

(cl. 2) wherein each portion of plurality of contact comprises protruding bumps (2);

(also cl. 3, 5,10) "sawing" along scribe/street to form individual die (Par.0037);

(cl. 4, 7, 11,12, 14) and the removing and sawing is done simultaneously (i.e. sawing removes material in its path) removing entire coating in street/scribe region;

Art Unit: 2813

(cl. 6, 7) wherein removing exposes plurality of contacts (Fig 1e) by removing an entire portion of coating above contact and thereby exposing it;

Shibata further discloses removing by chemical etch (Par, 0015) and scribe lines (Par. 0028), but does not disclose that its etch results in dissolution or that scribing the surface of the substrate along scribe areas.

Gupta teaches and that chemical etches results in dissolution (Par. 0065; step h, Fig. 1).

It would have been obvious to one of ordinary skill in the art that the chemical etch of Shibata results in dissolution in order to remove the material as taught by Gupta (Par. 0015).

Neither Shibata nor Gupta appear to show scribing the surface of the substrate along scribe areas.

However, Manor utilizes a scribing method by forming scribe lines with laser (Fig 2, sep 205) along a scribe area.

It would have been obvious to one of ordinary skill in the art to incorporate scribing as taught by Manor into the surface of the modified structure of Shibata, in order to form scribe lines/street as required by Shibata (Par. 0028, 0034).

With respect to claim 3, Shibata discloses the thickness of its coating, but does not appear to explicitly disclose the thickness between 5 to 35 microns. In any event, the thickness would have been obvious since it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical.

See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Claims 8 and 13<sup>1</sup> are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al. (U.S. 2003/0013233), Gupta et al. (U.S. 2004/0014253) and Manor (U.S. 2002/0031899) as applied to claim 1 and 9 and further in combination with FUJI (JP2000630747).

Neither Shibata, Gupta nor Manor appears to show the coating as a resin flux, but Fuji teaches the use of an epoxy flux coating (See Abstract).

It would have been obvious to one of ordinary skill in the art to form the coating coating/sealing/ underfill of Shibata with an epoxy flux in order provide reliable adhesion between its component and substrate as taught by Fuji (English Abstract).

### ***Response to Arguments***

Applicant's arguments filed have been fully considered but they are not persuasive.

Applicant contends "regardless of whether...reference teach ...scribe lines...scribing through the substrate. [A]pplicant's position is the reference does not

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<sup>1</sup> Because claim 16 is drawn to canceled claim 15, it also canceled. However, if properly claimed the rejection would be with this group.

Art Unit: 2813

teach...removing portion of the coating by a dissolution process after scribing," with the emphasis placed on removing after scribing. Examiner respectfully disagrees.

Shibata explicitly shows scribe lines in Figure 1(a) and therefore must utilize a scribing process to form its scribe/street lines. **After** the scribing process, Shibata disclose in Figure 1(e) removing portions of its coating to expose<sup>2</sup>. Because Shibata clearly shows removal of its coating (3) in Figure 1(e) after its scribing process utilized in Figure 1(a), applicant's arguments are found unpersuasive and the rejection deemed proper.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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<sup>2</sup> Examiner previously requested that applicant provide arguments in rebuttal to examiner's position to enable applicant to overcome examiner's prima facie case. Applicant failed to address examiner's positions except to say that it was not necessary, since the prior art failed to disclose removal of a coating after scribing. Because applicant failed to challenge examiner's positions (e.g. examiner established in the obviousness of a dissolution step to remove the material), and has only maintained that the reference did not show removal of the coating after scribing, applicant's challenge stands or falls with that contention.

Art Unit: 2813

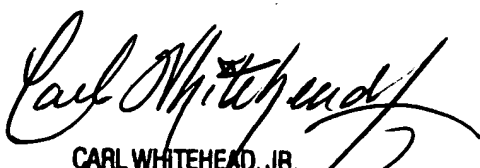
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jmm, J.D.  
October 18, 2006

  
CARL WHITEHEAD, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800